

LOW DIELECTRIC CONSTANT MATERIAL REINFORCEMENT FOR IMPROVED
ELECTROMIGRATION RELIABILITY

5

ABSTRACT

A reinforced semiconductor interconnect structure,
having the following components:

10 A first metal interconnect disposed in a first
material, the first metal interconnect having a line portion
and at least one via portion, an anode section and a
cathode section, the via portion of the first metal
interconnect located in the anode section, the line portion
of the first metal interconnect having a top, bottom and
terminus side, wherein at least a part of the bottom side of
the line portion of the first metal interconnect in contact
with the first dielectric;

20 a first reinforcement disposed in the first material,
the first reinforcement in contact with at least the bottom
side of the first metal interconnect, the first
reinforcement comprising a second material, the second
material being electrically nonconductive; and wherein the

second material has a greater mechanical rigidity than the first material.

11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61
62
63
64
65
66
67
68
69
70
71
72
73
74
75
76
77
78
79
80
81
82
83
84
85
86
87
88
89
90
91
92
93
94
95
96
97
98
99
100